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ABSTRACT

A comprehensive plan for environmental education in Minnesota is developed in this report. Organizational recommendations are defined first, indicating the need for an organizational structure, one consisting of eight regional environmental education commissions and one state environmental education planning-coordinating council. The commissions and council composition, duties, authorities, boundaries, and interdepartmental relationships are all enumerated. Recommendations for implementing environmental education programs through both formal and non-formal educational processes are also included. Methods and procedures which may be utilized in the various programs are suggested for: grades K-12, non-disciplinary curriculums, in-service teacher training, pre-service teacher training, post-high school institutions, non-formal community education, pre-kindergarten education, voluntary organizations, religious education programs, business/industry/labor organizations, and governmental units. In addition, an effective system of communication is advocated and described together with state-level administrative recommendations. Overall, the plan has its foundation at the local and regional levels, determining priorities and methods for implementing community-wide programs. But it calls on state government to provide the organization and material resources which will allow meaningful programs to occur. (BL)

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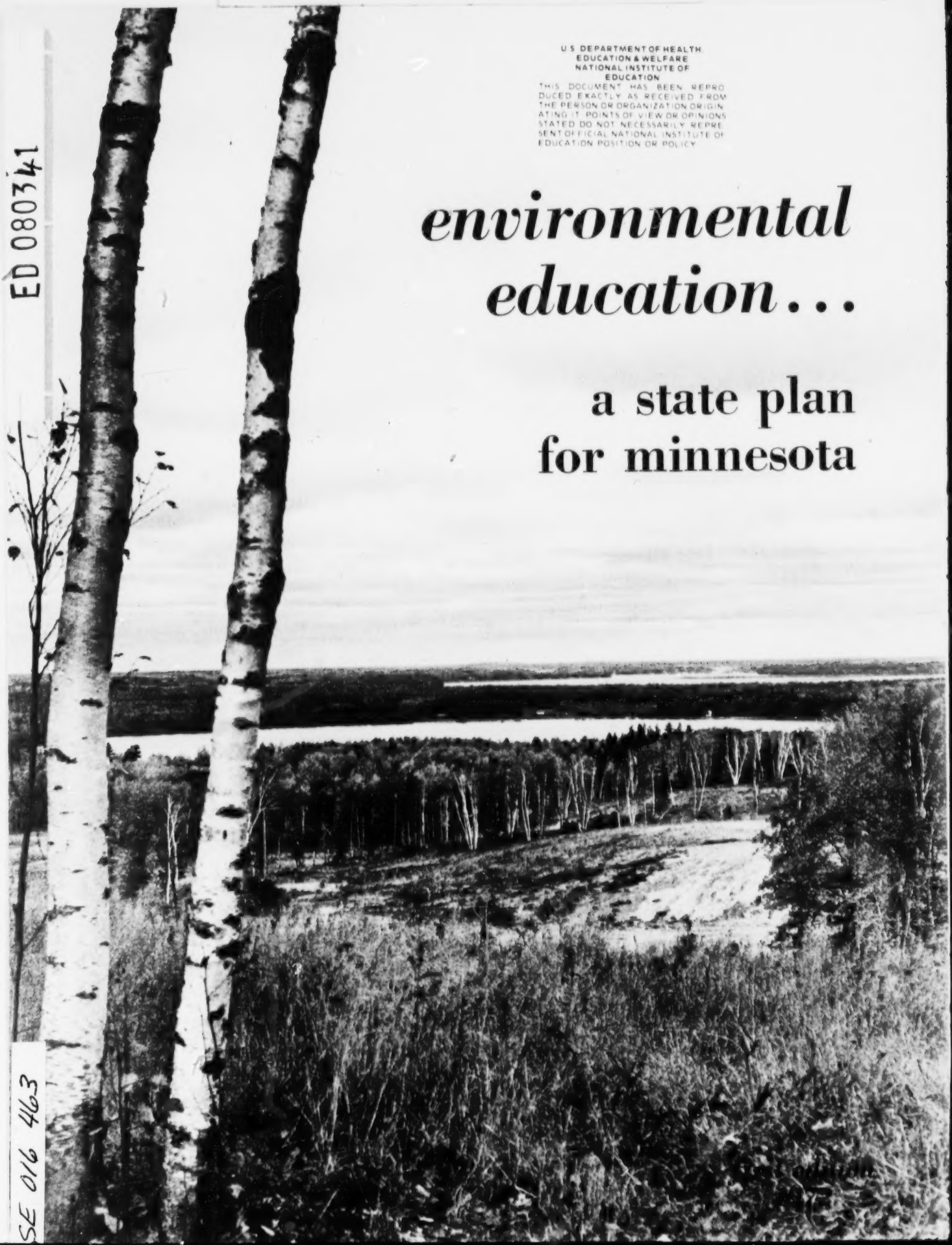
environmental education...

a state plan for minnesota



SE 016 463

To the Reader:

When the members of the Minnesota Environmental Education Council met for the first time in August of 1971, their task was clearly and concisely spelled out: develop, for all citizens of the state, a comprehensive plan for environmental education.

The means of accomplishing that task were not nearly so obvious. However, the Council—consisting of 30 members* appointed by Governor Wendell R. Anderson to represent the many diverse segments of Minnesota society—set out to gather and study data regarding current programs and future needs in environmental education. Individuals and organizations from throughout the state were asked to contribute ideas and suggestions.

The almost year-long study culminates with preparation of this Minnesota State Plan for Environmental Education. It is intended that reactions to the Plan be sought by the Council from groups and individuals throughout the state during coming months and years. To assist the Council in making desirable amendments to the Plan, interested persons are requested to submit their comments to:

Minnesota Environmental Education Council
647 Capitol Square — 550 Cedar Street
St. Paul, Minnesota 55101.

Writing the Plan represents only the first step. The task ahead looms still larger and more complex. Minnesotans now must become aware of its existence and extend approval through their attitudes and actions.

"The success of the plan will be determined by how effectively it can influence the attitudes of people. If citizens do not develop a positive attitude toward maintenance of natural resources and improvement of their environment, all the rules, regulations, laws and education programs will be of little value."

—A Detroit Lakes Vocational-Technical School Instructor
Northwest Regional Meeting, Feb. 12, 1972.—

*See Appendix A for Membership roster.

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Glossary of Terms

NOTE: *An attempt has been made throughout the Minnesota State Plan for Environmental Education to use common terms whenever possible. It was not always possible. Below are 12 words or phrases used frequently in the Plan, which may require definition.*

1. **Adult education:** That portion in an individual's formal and non-formal learning processes which takes place during his adult years.

2. **Curriculum:** A specific course of study within a given subject or several different subject areas.

3. **Environmental Education:** An integrated process which deals with man's inter-relationship with his fellow man and with his natural and man-made surroundings, including the relationship of population growth, pollution, resource allocation and depletion, conservation, technology, and urban and rural planning to the total human environment. Environmental education is a study of the factors influencing ecosystems, mental and physical growth, living and working conditions, decaying communities and population pressures. It is intended to promote among citizens an awareness and understanding of the environment, our relationship to it and to each other, and the concern and responsible action necessary to assure survival and improve the quality of life.

4. **Formal education:** That portion of an individual's education which is provided through specific recognized institutions — elementary schools, junior high schools, high schools, vocational schools, junior colleges, colleges and universities.

5. **Implementation:** A term used to mean "to carry into effect" or accomplish a particular program or philosophy (i.e. the implementation of a curriculum.)

6. **In-service teachers:** Term used to describe teachers who are currently employed in public, private or parochial schools.

7. **K-12:** That portion of an individual's formal education which takes place between kindergarten and twelfth grade.

8. **Non-disciplinary:** Term used frequently in connection with curriculum. A discipline in education circles refers to a particular subject area such as math, science, social studies. To approach education on a non-disciplinary basis means to do so without regard to traditional subject area boundaries — to allow and encourage a student to study a problem or undertake a project utilizing skills and information from one or many subject areas.

9. **Non-formal education:** Processes by which an individual gains knowledge and experience outside of recognized formal educational institutions. (See #4).

10. **Post high school, higher education, post-secondary:** All terms used to describe an individual's formal education following graduation from high school.

11. **Pre-K:** Those years of an individual's life prior to enrollment in kindergarten.

12. **Pre-service teachers:** Term used to describe students currently in colleges and universities who are preparing for careers as teachers.

Rationale

For Environmental Education*

The problems we observe in the environment today have their origins deep in our past and present way of life. While technology has made life easier for us in many ways, it has also vastly altered the environment. Not only is our quality of life reduced but life itself is jeopardized. A new life style is called for, based on the requirements of living within our environment. We must develop enlightened ways of living in harmony with nature, with each other and with our world. Finding the way is not merely government's responsibility. Nor is it only our neighbor's attitude and manner of living which needs alteration, it is our own.

One way to begin a new way of thinking and of living is through environmental education.

Environmental education is a life-long process. It is a way of looking at life, fostering awareness of other life and of inter-relationships, learning to recognize the effects (both good and bad) man has on his physical and biological surroundings, and the responsibilities he must accept for the mere fact of his presence and his activities in the environment. It should enable him to make sound ecological decisions and foresee their consequences; to make value judgments, and act accordingly. Environmental education encourages development of life values and a style of living which minimizes destruction and maximizes those relationships that enhance life. It is learning how to contribute to the quality of life, and fosters the constructive use, rather than exploitation, of the environment.

It is important to understand that environmental education must provide more than a schoolhouse approach to ending the degradation of man-made surroundings and the natural world. It will not simply provide an understanding of pollution problems and provide the nation with skills to meet or solve those problems.

It is not merely a course in school or a curriculum combining elements of the natural and physical sciences into a new department or specialty. Nor is it just another name for outdoor education, resource management, or conservation education. Environmental education colors and affects the humanities, languages, social sciences, history, economics, and religion as dramatically as it does the natural sciences. Environmental education provides alternate ways of thinking and ultimately acting.

It will give an ecological perspective for every aspect of learning and living, including our relationships with other members of the human community. Constructive use of the environment will be possible only when and if we establish honest and open attitudes in our day-to-day dealings with one another. It is not reasonable to expect people to develop concern for the physical environment unless they first develop an understanding of and a concern for the well-being of other people.

Environmental education requires an effort to make basic cultural changes which will be intensive for at least two decades and in the process become an integral part of all human learning and behavior. The responsibilities must be shared by national, state and local governmental units. The other segments of society — schools, business, industry, labor, citizen groups, churches and the family — must support and participate in these efforts.

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*Adapted from *"Environmental Education—Education that Cannot Wait."* Department of Health, Education and Welfare: Office of Education; Washington, D.C. 1970.

Because these are such diverse groups it is necessary that a comprehensive plan for environmental education be developed, accepted and implemented by and through all segments of Minnesota society.

Historical Background

The Minnesota Environmental Education Council was established by Governor Wendell R. Anderson in 1971 in response to concerns expressed by agencies, organizations and individuals throughout the state.

The series of events leading up to the Council's formation began officially in 1969 when a bill was introduced in the Legislature which called for including conservation education courses in the schools of Minnesota. Later the bill was reworded to include all environmental education rather than limiting the scope to one specific area. The State Legislature then enacted Chapter 126.111* which directed the Departments of Education and Natural Resources to develop and implement a comprehensive environmental conservation education program in public schools throughout Minnesota. Although funds were not specifically appropriated for environmental education, the two departments were able to begin the work of carrying out the Legislature's mandate.

During the biennium the Department of Education established and funded the staff position of Environmental Education Consultant. A comparable position already existed in the Department of Natural Resources. An Environmental Education Steering Committee consisting of personnel from the two departments was then created and the Commissioners of the two departments established an Environmental Education Advisory Task Force.

The two departments contracted for the development of 13 experimental units on environmental education and tested them in 12 pilot schools throughout the state during the 1970-71 school year. On the basis of evaluation of those units the series is being revised and expanded. The K-6 units will be ready for use at the beginning of the 1972-73 school year.

On the national level, the Environmental Education Act (PL91-516) was passed in October of 1970 with provisions for funding a variety of environmental education programs, among them the opportunity for states to submit proposals to the U.S. Office of Education for funding to begin planning statewide environmental education programs.

In February of 1971, Department of Education Commissioner Howard B. Casmey and Department of Natural Resources Commissioner Robert Herbst formed an ad hoc committee to prepare a preliminary master plan outlining a statewide environmental education program. The Committee submitted a working draft to the two commissioners and made it available to the Governor and members of the Legislature. As a result, Governor Anderson appointed an 18-member ad hoc committee to continue the planning effort and prepare a grant proposal for submission to the U.S. Office of Education under PL 91-516.

On June 29, 1971, the committee was notified that a $40,000 ($6,700 less than requested) U.S. Office of Education Special Evaluation and Dissemination Grant was awarded for the period of July 1, 1971 to June 30, 1972.

One of the recommendations of the Governor's ad hoc committee was that a permanent state-wide Environmental Education Council be formed.

*Appendix C.

August 4, 1971, the Governor signed Executive Order No. 6* which established the present 30-member Minnesota Environmental Education Council (MEEC).

The Council met for the first time August 19, 1971, elected officers, adopted by-laws and defined general objectives. An executive secretary was employed to begin work on September 7, 1971.

The Council's first-year efforts have been devoted to studying environmental education programs and needs throughout the state. This study has resulted in recommendations for more comprehensive environmental education programs for all Minnesotans and an organizational structure to initiate those programs.

*Appendix B.

A STATE PLAN
FOR
ENVIRONMENTAL EDUCATION
FOR
THE CITIZENS OF MINNESOTA

First Edition
1972

5/6

Organizational Recommendations . . .

The development and implementation of environmental education[1] programs which will successfully involve all segments of society and take into account the diverse interests of those different segments requires an organizational structure which can reach effectively into all parts of the state. Individuals responsible for making that organizational structure work must have an intimate understanding of the economic, political, social and cultural life of the environment they serve. That varies in Minnesota from the timber, mining and wilderness areas of the north to the agricultural areas of the south to the man-made environment of the cities and towns. Persons responsible for planning and initiating environmental education programs in schools and communities throughout Minnesota must have a basic understanding of these differences if they are to be responsive to the needs of those to whom their programs are directed. For only if programs respond to real needs will they be accepted and effective.

"There is a wealth of information and expertise throughout the state that should be available for teaching environmental education and it is too gigantic a task to attempt it all on the state level. A community, county or regional organization makes more sense . . ."

—A Southwest Minnesota Farmer
Southwest Regional Meeting, Jan. 29, 1972.—

To provide a vehicle that can tap this wealth of information and expertise on a manageable level, it is recommended that the State Legislature establish an organization consisting of eight regional environmental education commissions and a state environmental education council.

Under this plan, each regional commission would consist of twelve members, appointed by the Governor, with at least one person representing each of the following groups:

. . . K-12[2] school systems
. . . post-secondary[3] educational institutions
. . . regional economic development commissions, where established
. . . voluntary organizations
. . . business and industry
. . . labor organizations
. . . governmental units

Such a system would assure representation of all major segments of the region and would bring together those people involved in and knowledgeable about the diverse environmental education needs and programs within the region.

In general terms, the responsibilities of the regional commissions would include:

1) assisting groups within the region, in cooperation with K-12 and post-secondary institutions, with planning and conducting formal[4] and non-formal[5] educational programs of interest to the particular community or region;

2) developing a "resource bank" of education and informational materials and equipment, information on environmental education sites, and rosters of resource people for use by groups within the region;

3) developing a communications network among the various groups in the region as one means of coordinating environmental education efforts and communicating between the regional commissions, state council and appropriate state departments and agencies.

4) assisting organizations with the preparation of funding proposals for submission to state and federal governments and other funding sources;

5) assisting personnel of the Departments of Education and Natural Resources with the planning and implementation[6] of programs in the K-12 schools of the region.

These regional commissions would be accountable to a state environmental education council. The State Council would be composed of two members elected by each of the eight regional commissions, and fourteen members appointed at-large by the Governor. The State Council would be attached to the Office of the Governor and would be accountable to the Governor. Responsibilities of the state council would include:

1) Supervising and coordinating the work of the regional commissions in accordance with the provisions of the State Plan for Environmental Education;

[1] for definition, see glossary, page 1.
[2] K-12: That portion of an individual's formal education which takes place between kindergarten and twelfth grade.
[3] Post-secondary: an individual's formal education following graduation from high school.
[4] That portion of an individual's education which is provided through specific recognized institutions—elementary schools, junior high schools, high schools, vocational schools, junior colleges and universities.
[5] Processes by which an individual gains knowledge and experience outside of recognized formal educational institutions.
[6] A term used to mean "to carry into effect" or accomplish a particular program or philosophy (i.e. the implementation of a curriculum.)

2) preparing and submitting proposals for program funding to state and federal governments and private sources;

3) advising and assisting the Departments of Education and Natural Resources in carrying out their statutory responsibilities for environmental education;

4) evaluating progress made in implementation of the State Plan, and making appropriate revisions in it.

Together, the regional commissions and the state council could bring together the human and material resources which are presently being devoted to various aspects of environmental education, enhance these efforts and help direct more effective environmental education programs.

Why An Organization Is Needed . . .

The need for such an organizational structure has become clearly evident from an intensive, year-long study of the status and needs of environmental education conducted by the present Minnesota Environmental Education Council. Major components of the study included:

1) Written surveys directed to all of Minnesota's public school districts, approximately 100 voluntary organizations throughout the state that are interested in some aspect of environmental education, and all municipalities over 2500 population;

2) Six fact-finding meetings conducted at strategic locations throughout the state, at which representatives of educational institutions, voluntary organizations, governmental units, and business and industry made recommendations regarding needs in their respective areas of interest;

3) Review of proposals submitted by various organizations to the U.S. Office of Education for funding environmental education programs as described under PL91-516, Section III; and

4) A symposium on environmental education in post-secondary institutions, attended by representatives of most of Minnesota's colleges and junior colleges and several vocational-technical schools.

Complete summaries of these activities are described in the appendices. For purposes of demonstrating the need for the proposed organizational structure, the following excerpts are especially significant:

From the surveys of school districts: . . .

. . . 83% of the districts report that development of an environmental education program is needed, but

. . . only 2% have a formal policy regarding the program;

. . . 12% have budgeted funds for environmental education, and

. . . 21% have assigned responsibilities for environmental education to a specific person.

. . . 21% of the districts report that adult citizens have asked that greater emphasis be placed on environmental education, and

. . . 30% state that students have made similar requests.

The school districts go on to report that:

. . . 17% have provided environmental education training for their teachers on the local level, while

. . . 89% say they need area workshops on environmental education for their teachers, and

. . . 85% would like environmental education consultants to come to their schools to conduct in-service training programs.

. . . 50% of the schools are using environmental education materials obtained from the Department of Education and Department of Natural Resources, and

. . . 23% are using such materials obtained from other public agencies, but

. . . 90% state that they need more and better curricular materials directed to the local schools' needs.

In addition, other responses from many schools included such comments as:

"Specific curriculum[1] should come from local districts or at least be treated on a regional basis";

"There must be more grassroots participation in curriculum development and program planning";

"We need regional resource material centers to provide faster and more personal assistance"; and

"Don't overlook the small schools, we need help, too!"

[1] A specific course of study within a given subject or several different subject areas.

From Minnesota's voluntary environmental/conservation organizations . . .

. . . 93% report that environmental education is a major goal of their organizations,

. . . 83% have resource people available to work with other groups, but

. . . only 41% have actually conducted workshops or classes during the last year, and

. . . 4% have received state or federal grant funds to conduct their programs.

. . . 78% say they need information about and coordination with other groups to operate effectively.

. . . 71% need assistance with developing community-oriented informational materials, and

. . . 59% would like opportunities for training sessions for their leaders.

From the six regional fact-finding meetings . . .

Recurrent suggestions included:

. . . establishment of resource teams made up of local environmental specialists with the direct involvement of local school systems;

. . . development of mobile materials and resource units for use by schools and community organizations;

. . . more emphasis on adult education[1], particularly directed toward local decision-makers;

. . . more use of local leaders as resource people;

. . . establishment of regional environmental education councils;

. . . provisions for communities to develop programs which fit their unique needs;

. . . ready availability to each school district of an environmental education coordinator; and finally,

. . . "regional development and implementation is the only method which can really succeed."

Among Minnesota's municipalities, survey results show that little in the way of environmental education efforts are presently taking place . . .

. . . Only 18% report having an environmental advisory commission;

. . . 11% have conducted studies on environmental matters;

. . . 10% have sponsored environmental education activities, yet

. . . 71% believe that they should be promoting and assisting with a variety of environmental activities ranging through pollution control and abatement, recycling, urban planning and environmental education programs.

Clearly, these major segments of Minnesota's population recognize the need for enhanced environmental education efforts and are expressing interest in helping meet this need. Over 95% of the schools have responded to the survey questionnaire, and more than 85% of the voluntary organizations and 60% of the municipalities have done so. These respondents and people from throughout the state who participated in the six regional fact-finding meetings have left one message that has overshadowed all others — "We're interested in doing the job, but we cannot do it effectively without guidance and coordination that is readily available to us on the local and district levels."

At this time there is no existing group or organization that can bring together all the diverse components of a community or region — school personnel, government officials, voluntary organizations, business, industry and labor people, church leaders and others — for the purposes of promoting and assisting environmental education efforts.

The present Minnesota Environmental Education Council, established by Executive Order of the Governor, has demonstrated that representatives of those segments of the population can collectively use their resources and knowledge to produce a mutually acceptable program. The same type of structure, but decentralized to be able to respond effectively to local needs, can work equally well. A proposal to the State Legislature for such a structure follows.

[1] That portion in an individual's formal and non-formal learning processes which takes place during his adult years.

A Proposal for an Environmental Education Organization . . .

The 1973 Minnesota legislature will be asked to enact appropriate legislation to create the following organizational structure to plan, promote and implement environmental education activities throughout Minnesota, in accordance with the Minnesota State Plan for Environmental Education.

I. Regional Environmental Education Commission (REEC)

A. Number and Description of Regions

Eight REECs will be established within regions designed to be as ecologically homogeneous as possible, and as shown on the attached map. Boundaries for each region follow county boundary lines, and incorporate one or more established economic development regions.

B. Membership

Each REEC will consist of 12 members serving without compensation and appointed by the Governor. Members must reside within the region and shall reflect the general population makeup of the region. Eight appointees shall be drawn from lists of nominees submitted to the Governor through the present Minnesota Environmental Education Council. In making recommendations to the Governor, MEEC shall solicit nominations from at least the following groups:

1. K-12 school systems
2. Post-secondary educational institutions (public and private junior colleges, colleges, universities and vocational-technical schools)
3. Regional Economic Development Commissions, where they exist or are in the process of being formed.
4. Voluntary organizations (such as: environmental/conservation groups, churches, civic groups, etc.)
5. Business and Industry
6. Labor organizations
7. Local, state and federal government agencies

At least one person from each of the above categories shall be appointed.

The source of nomination of the remaining four members shall be at the discretion of the Governor.

Initially, three members shall be appointed for one-year terms, three for two years, three for three years and three for four years, with all terms beginning on July 1, 1973. Thereafter, all appointments shall be for four-year terms. Members may be reappointed at the discretion of the Governor.

C. Accountability and Purpose of REEC

Each REEC shall be accountable to MEEC (described in section II).

Each REEC shall be governed by applicable state laws and by guidelines developed by MEEC, and shall be responsible for implementing the applicable provisions of the State Plan. Each REEC shall have the authority to establish its own priorities of implementation, based on the recommendations contained in the State Plan. Each REEC shall be available to assist the Department of Education and the Department of Natural Resources in carrying out its environmental education responsibilities in the K-12 school systems.

Each REEC shall be authorized to employ a full-time coordinator and a half-time secretary. The coordinator shall be responsible for carrying out the policies and procedures established by the REEC and shall be accountable to REEC.

II. Minnesota Environmental Education Council (MEEC)

A. Membership

The MEEC shall consist of 30 members serving without compensation, who shall be selected in the following manner:

1. Two members of each REEC shall be elected by each of the eight REEC's, one of whom may be the chairman of the REEC. Initially, one member shall be elected for a one-year term and one for a two-year term. Thereafter, both members shall be elected for two-year terms.
2. Fourteen members shall be appointed by the Governor. Initially, three members shall be appointed for one-year terms, three for two-year terms, four for three-year terms and four for four-year terms. Thereafter, all appointments shall be for four years. Members may be reappointed at the discretion of the Governor. At least one appointee shall represent each of the following state departments and agencies:

a. Education

b. Natural Resources
c. Pollution Control Agency
d. Higher Education Coordinating Commission
e. State Planning Agency

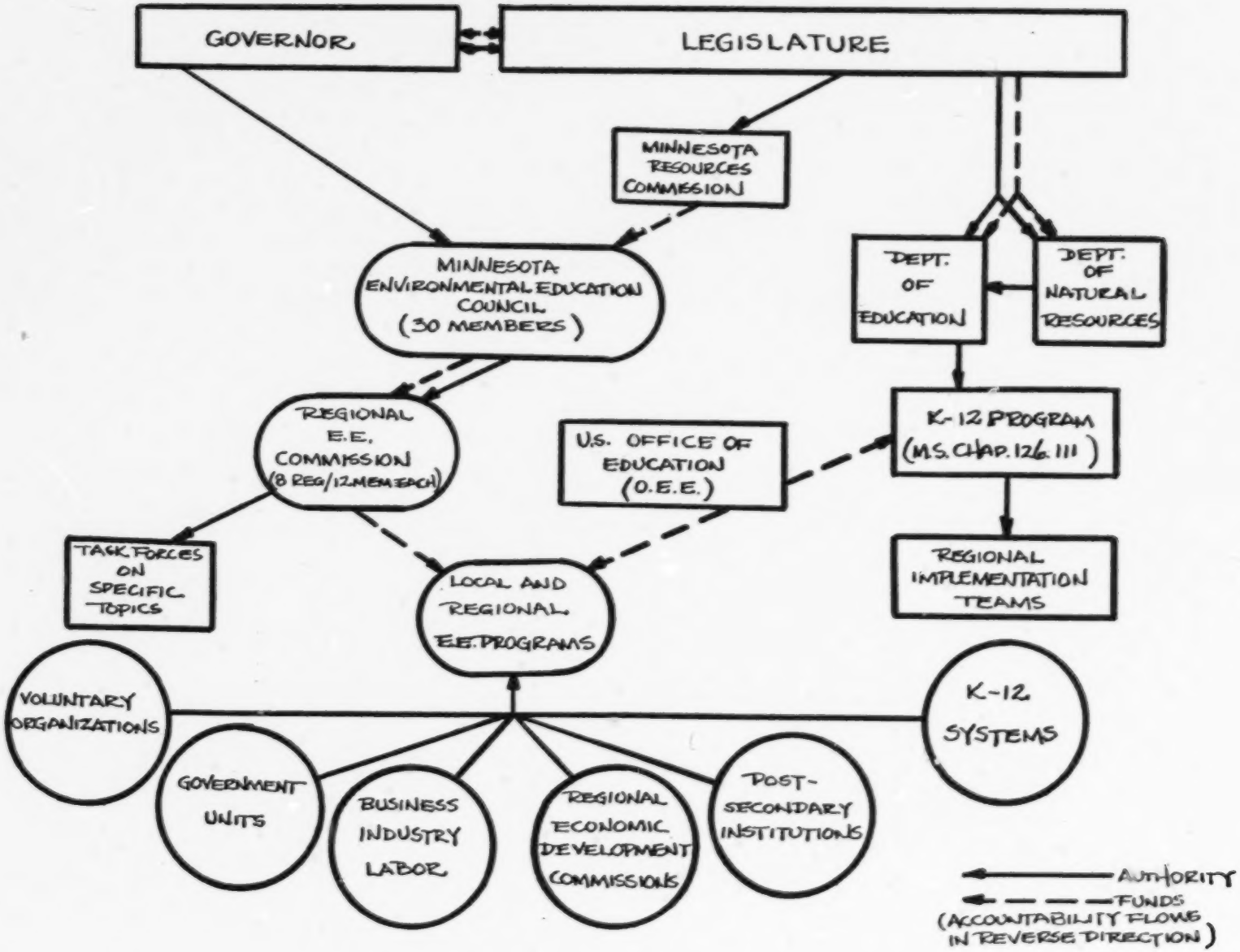
Otherwise, there shall be no restrictions on appointments, except that appointees should be as representative of the state's population as possible.

3. Appointments to both the regional commissions and the state council shall be made with consideration given to the following criteria:
   a. a general knowledge or interest in the unique environmental aspects of the region and a knowledge of the political, economic, educational, and/or socio-cultural structure demonstrated by employment or voluntary participation in one or more of those categories;
   b. an open-minded and sympathetic attitude toward the broad nature of environmental education — that is, an absence of extremes in attitudes toward environmental issues or educational processes;
   c. a willingness and ability to examine and try different methods of working with others in a problem-solving approach to education;
   d. planning and organizational abilities, skills in both written and oral communications, and a willingness to make a substantial time commitment to the organization.

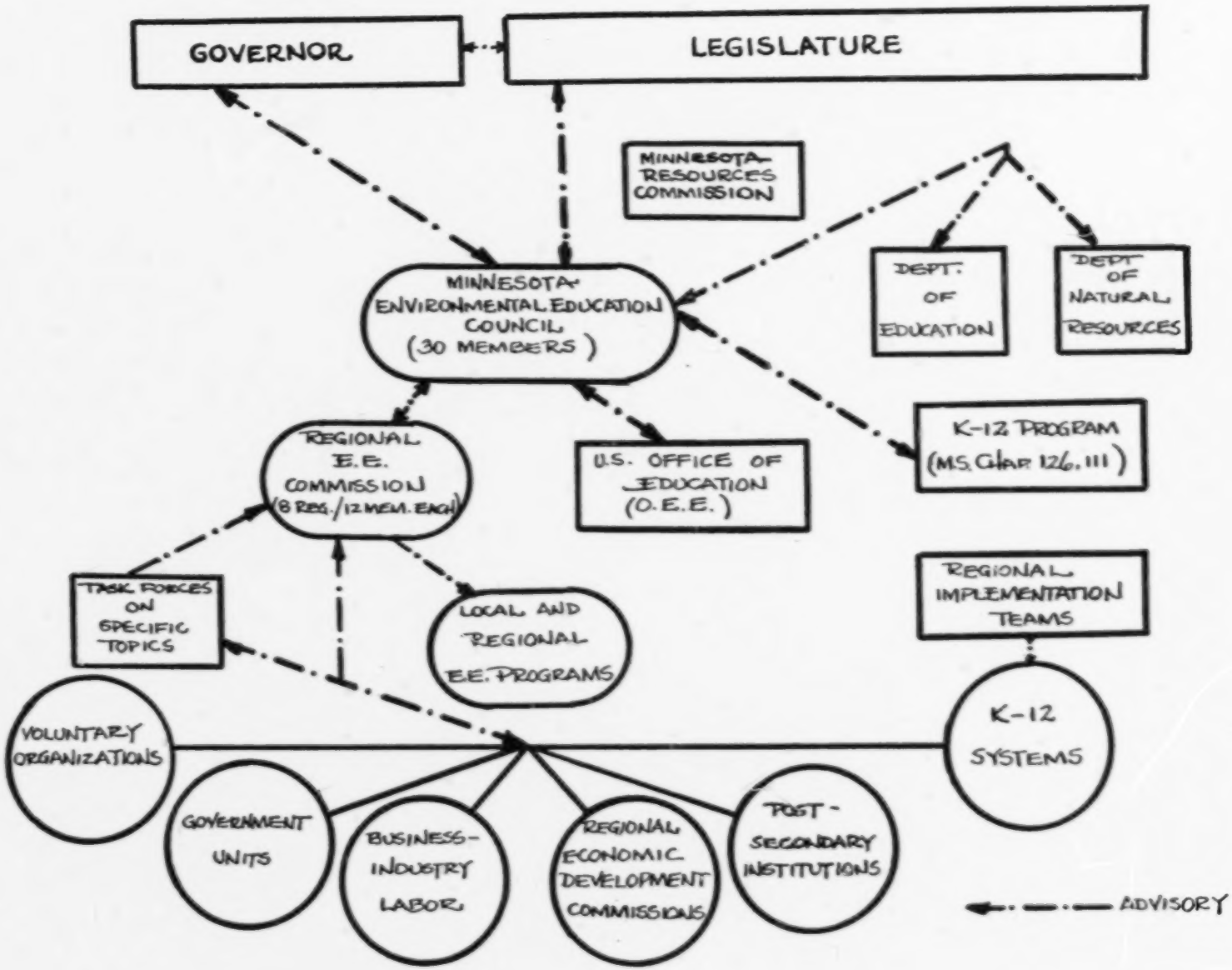
B. Accountability and Purpose of MEEC

1. MEEC shall be attached to the Office of the Governor and shall be accountable to the Governor.
2. Funds for the staffing and operating expenses of MEEC, the 8 REECs, and for implementing programs will be sought from the Minnesota Resources Commission. (Other state agencies active in environmental education programs will seek their own funding). MEEC shall also seek a commitment of funds from the Office of Environmental Education, U.S. Office of Education under PL91-516, Section III for implementing specific programs within the state. These federal funds, if secured, would need to be matched by state or local funds, but would provide approximately two to three federal dollars for each local or state dollar allocated for environmental education.
3. MEEC shall be authorized to employ an executive secretary, who shall be accountable to the MEEC Chairman, and appropriate clerical-secretarial help.
4. MEEC shall develop guidelines for allocation of funds to the 8 REEC's for staff and operating expenses and for grants for regionally-implemented projects and programs.
5. MEEC shall be responsible for coordinating the work of the eight regional commissions, developing guidelines for their operation, and assuring that their activities are consistent with the intent of the State Plan for Environmental Education.
6. MEEC shall be responsible for continuing evaluation of the State Plan and for making necessary revisions in it. MEEC shall act in an advisory capacity to the Governor, to the Legislature and its committees and to heads of the State departments and agencies as requested.
7. MEEC shall seek authority from the U.S. Office of Education, Office of Environmental Education, to serve as the official reviewing and recommending body for funding proposals submitted to the U.S. Office of Education under PL91-516, Section III by agencies and organizations in Minnesota. MEEC shall cooperate in this effort with state departments and agencies which have interests in particular proposals and/or particular applicant categories. MEEC and the REECs shall advise and assist applicants for funding under PL91-516 regarding types and content of proposals which will be consistent with the intent of the State Plan.
8. MEEC shall have no official connection with any other agency, organization or foundation, except as specifically contained in the law establishing it. MEEC shall seek information and recommendations from appropriate public and private organizations regarding environmental education programs, plans and needs, and shall make such information available for dissemination to interested individuals and organizations.

ENVIRONMENTAL EDUCATION FLOW CHART



ENVIRONMENTAL EDUCATION FLOW CHART



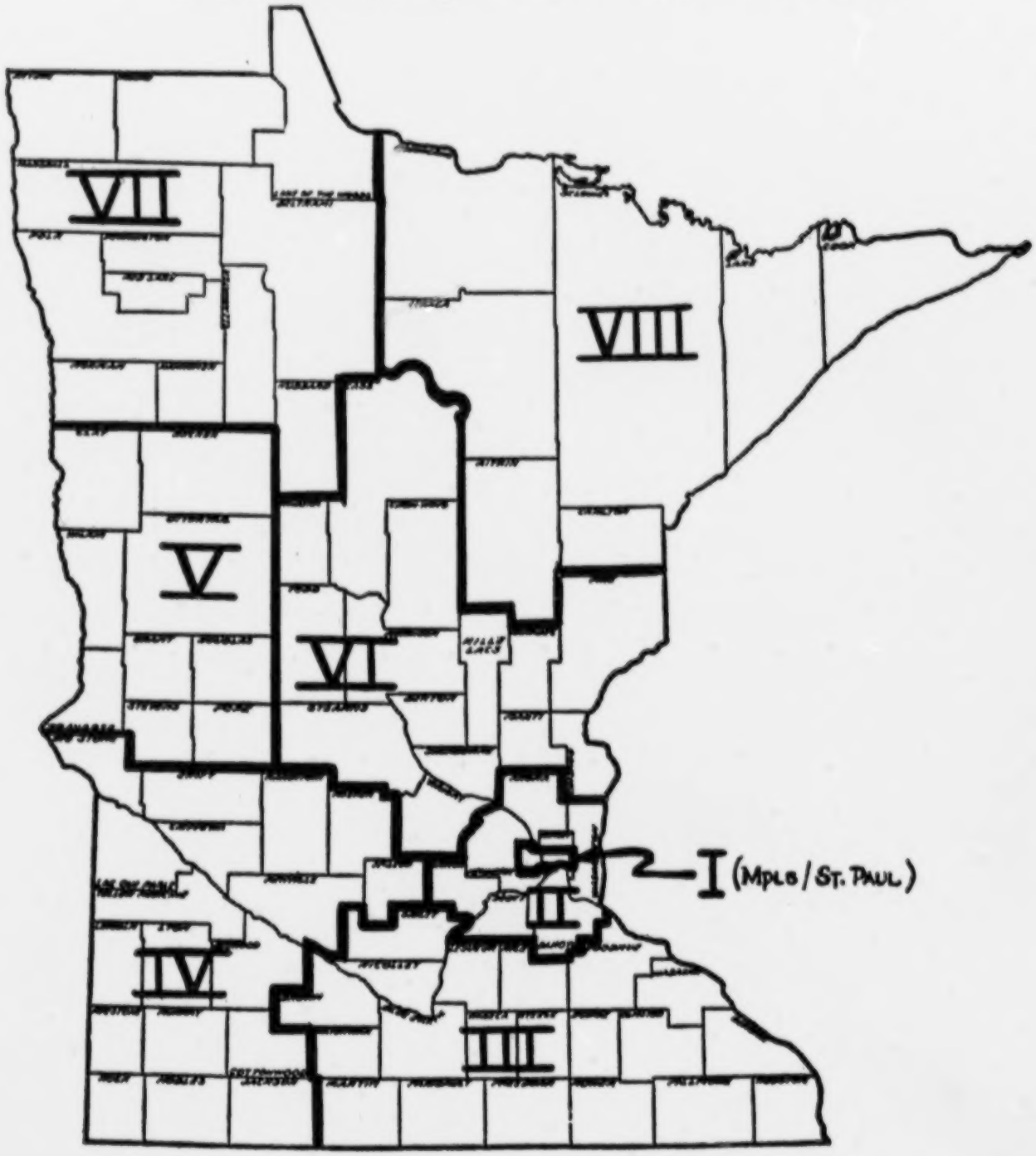
Proposed Environmental Education Regions

There are already many established regions and political subdivisions (counties, state house and senate districts, congressional districts, economic development regions, etc.) and it might be confusing to develop another set of boundaries. At the same time, it is important that for environmental education purposes those regions be somewhat different than any existing divisions. The enclosed map indicates one possibility that will meet the unique needs for workable environmental education purposes and, at the same time, use existing subdivision boundaries.

The proposed regions are reasonably homogeneous ecologically, they have some degree of population balance, and, except for regions I and II, they coincide with existing economic development regions.

	Environmental Education Regions	*Economic Development Region*
I	Minneapolis and St. Paul	11
II	Remainder of 7-County Metropolitan Area	11
III	Southeastern Minnesota	9 and 10
IV	Southwestern Minnesota	6W, 6E, and 8
V	West Central Minnesota	4
VI	Central and East Central Minnesota	5 and 7
VII	Northwestern Minnesota	1 and 2
VIII	Northeastern Minnesota	3

Proposed
Environmental Education Regions



Introduction to Methods and Procedures . . .

The Minnesota State Plan for Environmental Education recommends the establishment of eight regional environmental education commissions and one state-wide planning-coordinating council. This kind of organizational structure will best gain the broad grassroots support, visibility and credibility needed to make environmental education a strong, constructive force among the people of Minnesota in general and the decision-makers in particular.

Education occurs in two ways — formally and non-formally. Environmental education is no exception. Formal education is provided by public and private educational institutions — elementary and secondary schools, vocational-technical schools, junior colleges, colleges and universities. Non-formal education is the combination of knowledge and experience we all acquire outside of those institutions of learning. Sources of non-formal education include community groups, businesses and industries, governmental units, churches and families.

Recommendations for implementing environmental education programs through both formal and non-formal educational processes are included on the following pages.

Formal Education

"Environmental education is not just a new fad of education or a new fad of citizen concern. It is not just another element added to our curriculum. Environmental education is a fundamental element of education, of community action, and of life. The importance of environmental education can be deduced either through a consideration of the educational crisis or a consideration of the environmental crisis. Whichever route is taken, a similar conclusion is reached. Education is essential to saving our environment, and an environmental focus makes for effective education."

—Dr. Edward Weidner, Chancellor,
University of Wisconsin, Green Bay—
Camp Courage, Minnesota, Mar. 1, 1972

Kindergarten Through Twelfth Grade (K-12)

The State Legislature assigned primary responsibility for K-12 environmental education programs jointly to the Department of Education and the Department of Natural Resources in 1969. It is logical and appropriate that the responsibility continue to reside there. However, the departments can fulfill their statutory obligation only with active assistance from and shared responsibility with local school districts, the regional commissions and the Minnesota Environmental Education Council.

On the state level, the Council views its role as that of a coordinating body between the two departments, and, as an advisory body to assist the departments in the planning of environmental education programs.

Current K-12 efforts by the two state departments can best be summarized by discussing the two specific parts of that program: Research and Development and Implementation.

Research and Development: A year-long evaluation of pilot materials tested in 12 elementary schools during the 1970-71 school year resulted in the rewriting of new "mini-units" to include the following broad objectives:

1) Involving the student in natural processes so that he understands his dependence on them.
2) Bringing the student to an awareness of the social processes contingent upon the natural processes.
3) Promoting creation within the student of an environmental ethic.
4) Motivating the student to seek solutions.

It is hoped that these objectives will make it possible for a student to come to understand that man/man relationships are as important as man/environment relationships. Approximately 30 of the units have been developed for grades kindergarten through six dealing with five basic topic classifications: man-animals, plants, air, water, land.

The two departments have also cooperated to develop eight new motion pictures and 24 filmstrips for use in the primary grades.

Another phase of the K-12 program is the development and implementation of a status and needs survey of environmental education in Minnesota secondary schools to supplement existing information. The survey data is expected to provide ideas for experimental curriculum models to be tested in secondary schools.

Still another new development is the publication of *"A Guide to Minnesota Environmental Education Areas,"* which provides a listing of nearly 400 outdoor study sites. It has been designed for use by state schools and is available through the Minnesota Department of Natural Resources, Bureau of Information and Education, St. Paul.

Implementation: With the realization that not even the best curriculum materials will be used unless accompanied by teacher in-service[1] training programs, the two departments have conducted a series of administrative workshops with the idea of informing and educating school administrators about environmental education programs and seeking their support. The workshop sessions were followed by leadership training programs which established 60 leadership teams designed to train classroom teachers across the state to use the new materials and to make use of the outdoors as a classroom. These sessions started early in summer; the goal is to continue until every educator in the state has had an opportunity to participate.

The Minnesota State Plan for Environmental Education recognizes and commends the efforts of the Departments of Natural Resources and Education. It also recognizes the need for additional efforts at the K-12 level. Local communities can

[1] Term used to describe teachers who are currently employed in public, private or parochial schools.

not wait for the two departments to do their job for them. They must begin immediately to make environmental education progress on their own.

It is recommended that the eight regional commissions serve in an advisory and supportive capacity in contributing to the development and implementation of K-12 environmental education programs at the local level.

Several areas are seen as essential to effective implementation of those programs: 1) a move toward a non-disciplinary[1] approach to environmental education, 2) training both pre-service[2] and in-service[3] teachers to incorporate environmental education into their day-to-day teaching, 3) incorporation of environmental education into course work of every K-12 grade level, and 4) securing the support of the general public and local boards of education.

K-12 programs are an inseparable part of the total State Plan, which also includes recommendations for formal post-high school education and non-formal community education. It is strongly recommended that the two state departments and local school districts place particular emphasis on these suggestions. In many instances the regional commissions can provide assistance and support.

Non-Disciplinary Curriculum

The unique nature of environmental education is that it encompasses all subjects usually found in the school curriculum. Students should be allowed and encouraged to approach projects using skills they have gained through various subject areas, for example, science, mathematics, social studies, language arts, humanities. The development of an effective program should capitalize on this unique aspect. The State Departments and local school districts themselves can best accomplish this through the following suggested procedures:

1) *State Department of Education subject matter consultants* should be encouraged to explore avenues which will allow them to function as members of a non-disciplinary team in matters relating to environmental education so as to serve as an example for school systems throughout the state to follow.

2) *Curriculum materials and teaching methods should be developed to:*

   a. encourage, promote and/or require instruction by teams of teachers representing various subject areas;

   b. emphasize the interdependency of all elements of the environment;

   c. encourage the teaching of skills through which values are formed rather than advocating any particular value or set of values — that is, students should be taught how to think, not what to think;

   d. deal with environmental problems in a rational and objective manner. Teachers and students should examine all sides of an issue. The regional commissions should be called upon to identify and make available resource people and materials which will assist teachers in providing for objective learning experiences;

   e. lead students to consider the importance of human relationships as a vital element in their environment. Values developed in this human environment effect our dealings with one another and the quality of these relationships is reflected in the relationship of people to their physical environment;

   f. provide a balance between the necessary knowledge and outside-the-classroom project activities. One activity should supplement the other. Regional commissions can help coordinate school activities with community projects and direct teachers to helpful sources of information and possible project locations;

   g. encourage, promote, and/or require instruction in a variety of situations, including both in-school and non-school environments. Regional commissions will make suggestions to local teachers regarding non-school sites and personnel which could be utilized best for the investigation of a particular environmental topic;

   h. begin with the students' local experiences but which lead ultimately to an expanded view of the total environment. The curriculum should deal with local, state, regional, national and international concerns. Regional commissions can assist teachers in drawing logical

[1] Term used frequently in connection with curriculum. A discipline in education circles refers to a particular subject area such as math, science, social studies. To approach education on a non-disciplinary basis means to do so without regard to traditional subject area boundaries—to allow and encourage a student to study a problem or undertake a project utilizing skills and information from one or many subject areas.

[2] Term used to describe students currently in colleges and universities who are preparing for careers as teachers.

[3] Term used to describe teachers who are currently employed in public, private or parochial schools.

comparisons between local environmental projects and state, national or international concerns;

i. encourage students to undertake independent study projects through participation in non-school activities (such as evening community education classes, attendance at public hearings, governmental functions) for classroom credit. Regional commissions will keep teachers informed of such opportunities in the communities of the area.

3) *Curriculum implementation plans should:*

a. include methods by which programs can be evaluated in order to assist local schools in meeting their accountability responsibilities. School boards will ultimately have to prove the program's value to the public if environmental education is to acquire and maintain the public support needed to become a continuing program.

b. provide information about sources of supportive materials such as films, published materials and equipment necessary to the success of the program. Regional commissions will assist in assembling such information from all sectors of the community and in making this information available to all schools in the region.

In-Service Teacher Training

"In terms of priorities, I would focus hard on the fundamental question of how we find and train these teaching paragons who can deal with the issues on an inter-disciplinary scale. Teacher training/retraining may be the first priority."

—A Minneapolis businessman
Twin City Regional Meeting, Apr. 18, 1972—

A training program for on-the-job teachers is the essential and logical companion to curriculum development. Such a program must provide materials, organization and staffing to reinforce the philosophy inherent in the non-disciplinary approach to environmental education. In-service teacher training cannot be effective without the support of teachers, administrators and school board members. Members of each of these groups, along with members of the regional commissions, should be involved in a cooperative, supportive capacity.

The responsibility for providing training programs for on-the-job teachers must be shared. The Departments of Education and Natural Resources are involved in teacher training efforts by virtue of legislative mandate. These efforts need to be expanded, encouraged, supported. Teacher organizations, the Minnesota Education Association and the Minnesota Federation of Teachers, should participate. School districts, too, must take the initiative to identify local resource persons and materials to assist teachers in developing programs and teaching techniques which will best communicate to their students ecological concerns unique to the area. The regional commissions should also participate in preparing teachers to incorporate the environment into their in-and-out-of-classroom projects. They could most effectively accomplish this cooperative effort by assisting local districts to arrange workshops and encouraging colleges and universities to establish a course or sequence of courses to be offered to teachers for academic credit.

Teacher training courses, workshops, summer institutes and seminars should be established which include development of skills, attitudes and knowledge necessary to carry out the K-12 curriculum. Areas to be covered should include:

1) *Resource management concepts*—Teachers should be provided with a basic understanding of both renewable (eg. trees) and non-renewable (eg. iron ore) resources. They should be knowledgeable concerning the limitations of both physical and natural resources.

2) *Non-disciplinary teaming techniques* — Teachers should be shown how to "team" with their colleagues, without regard to subject area, to assist students in approaching environmental projects. For example students might utilize skills and concepts from art, science and math classes as the basis for investigating a forest or a city block.

3) *Utilization of non-school sites* — Teachers need to be provided with the skills necessary to make use of non-school sites appropriate to environmental projects. For example, nature centers, the local dump, a swamp or a city park might provide the ideal location for the collection of certain types of data and investigation of a particular topic. Regional commissions will assist teachers in selecting those non-school sites.

4) *Reviewal of appropriate K-12 curriculum materials*—Teachers must be made aware of available curriculum guides and materials. Sources include the State Depart-

ment of Natural Resources and Education, local school districts and commercial publishers.

5) *Value clarification techniques* — Teachers need to be made aware of methods by which they can assist their students in developing values. The object of any value clarification technique must be to teach students how to arrive at values, rather than to teach students what values to hold.

6) *Coordination of K-12 and community environmental education programs* — Teachers need to be encouraged to become involved in community activities, or at least to be aware of the nature of those activities. Teachers should be shown methods by which they can incorporate community concerns into classroom projects. They also should be aware of individuals and groups within the community who could assist and support their environmental education efforts. The regional commissions will be excellent sources of information regarding the community activities and key persons involved.

7) *Utilization of resource people and sites* — Teachers need to be made aware of the information and materials available to them through a variety of sources including local, state and federal agencies, libraries, the business community, churches and voluntary organizations. Again, regional commissions will provide access to this kind of information.

Pre-Service Teacher Training

Just as on-the-job teachers need special environmental education training, so do students in colleges and universities pursuing degrees which will eventually qualify them to be classroom teachers. While it is extremely important that environmental education be integrated into all subject areas offered by post-high school institutions — vocational-technical schools, junior colleges, colleges and universities — *there is no doubt that the training of new K-12 teachers should command the highest priority.*

Unless classroom teachers are prepared to include environmental considerations as an integral part of their subject area responsibilites, their students cannot be expected to develop the skills necessary to make sound decisions on matters effecting the environment.

"If environmental education is to be part of all the classroom work done by the teacher, then environmental education must similarly appear in all the preparation work done by a teacher."

—A Park Naturalist
Twin City Regional Meeting, Apr. 18, 1972—

It is recommended that colleges of education with the cooperation of the regional commissions should:

1) provide for participation of faculty and students in conferences and workshops to examine new materials and techniques, to gain experience in using out-of-classroom sites, to learn to coordinate environmental education efforts with different subject-area teachers and to identify resource people and ways they can be used in the teaching process.

2) provide for off-campus experiences that would lead to continuing use by teachers of resources such as environmental learning centers, nature centers, state and national parks, museums, community centers, and experiment stations.

3) provide experiences that would lead pre-service teachers to cooperate and become involved with adult education efforts being made by environmentally-oriented organizations, business, industry, labor and governmental agencies in the community.

In addition, teacher training institutions should establish criteria in order to be able to describe and evaluate the environmental education competencies of their graduates.

Teacher training institutions should retain the responsibility and freedom to develop their own programs and methods within the guidelines recommended by the State Plan. The faculty and administrators of the colleges of education should be given encouragement and assistance by the institutions' governing body and the regional commissions in setting up those programs.

Requiring specific environmental education training as a prerequisite for teacher certification is considered to be a last alternative and hopefully an unnecessary one.

Post-High School Environmental Education

"Post-secondary institutions of Minnesota have a major role to play in bringing about the kind of environmental literacy that will allow all of us to make more rational decisions about our interactions with each other and with our environment. However, this may require a re-definition of roles and responsibilities, the re-examination of attitudes and actions — in essence a totally fresh educational approach."

—Governor Wendell R. Anderson
Post-Secondary Symposium Proceedings,
Apr. 3, 1972—

Formal education beyond the twelfth grade is provided by public and private junior colleges, colleges, universities and vocational-technical schools. These institutions have unique roles to play in environmental education which reach far beyond the training of students who wish to become classroom teachers. Post-high school institutions must aim their efforts at enhancing the environmental knowledge and values of all their students as well as extend their knowledge, resources and influence towards formal and non-formal education of the general public.

The responsibilities of post-high school institutions for environmental education can be met in a variety of ways. It is recommended that:

1) Environmental philosophy and concepts should be incorporated into all programs (both formally and informally) offered by vocational-technical schools, junior colleges, colleges and universities in Minnesota.

2) Specific programs centering on environmental education should be available in all post-high school institutions, ranging from broad clusters of courses, for non-degree students to graduate degree programs.

3) A wide variety of services, facilities and materials should be available, through post-high school institutions, for both on- and off-campus environmental education efforts. Such services should include outdoor learning sites and indoor laboratories, extension offices, research materials, grant application and other funding advice and assistance and audio-visual materials.

Procedures for Achieving Objectives

With MEEC serving in an advisory, coordinating and promotional role, the board of regents or comparable governing body of each post-high school educational institution should establish an internal environmental education committee to promote and support the development and implementation of environmental education programs within its institution. These committees should: (1) include members of the teaching faculty, administration and student body, (2) be representative of the various teaching specialties or disciplines within the institution and (3) include those people who have demonstrated the interest and experience necessary to successfully initiate environmental activities such as organizing curriculum materials, research projects and teaching teams. The resources of MEEC are available to assist the institutions in identifying appropriate people to serve on these committees.

The institution's governing body should enhance the committee's efforts by giving committee members special recognition, providing funds for environmental education projects and using its prestige and influence to involve others in the environmental education process.

REEC and MEEC will assist those institutions which have established committees by: (1) providing coordinative and communicative services, (2) helping to secure funds for environmental education, and (3) acting in an advisory capacity to the committee and the governing body, for the purposes of assisting with the planning and implementation of programs.

The activities and programs developed by the committees should:

1) focus on an educational process deeper than just the informational level, including areas such as problem solving, knowledge relating to responsible environmental behaviors and their consequences, and skills appropriate to the clarification of values — that is, how to think through and assess various alternatives and not what to think.

2) be considered as non-disciplinary and allowed to develop in the most appropriate way — moving into and out of the different disciplines and neither confined to a single subject area nor required to include several subject areas.

3) be coordinated within and between the post-high school institutions and also with K-12 and non-formal environmental education efforts. REEC and MEEC will assist with this coordination by:

a. developing and maintaining a communications network between the various institutions and organizations, and
b. assisting post-high school institutions in establishing working relationships between institutions when such relationships would enhance environmental education programs.

Non-Formal Education

"An environmental education program must extend beyond high school, not only to post-secondary education, but more particularly to the adult citizens of the community."

—A Wadena, Minnesota, High School Teacher
Northwest Regional Meeting, Feb. 12, 1972—

Improvement in the quality of the environment — conservation of diminishing natural resources, ending pollution of the air, land and water, constructive changes in consumer habits and attitudes, solving the problems of urban blight — cannot wait until a new generation is educated.

The present population — particularly the political, business, education and social leaders of our communities — must gain the knowledge which will lead it to an increased environmental awareness; it must also develop the skills necessary to understand the environmental impact of its decisions.

Education of the total community, outside of formal institutions, is perhaps the most difficult task ahead. There is no single agency or organization through which to work, no one method that can be successful. Nevertheless, today's adults and youth must be reached, and reached effectively. The need to create lines of communication and cooperation between agents of formal education and the broader community and the need for the two areas to reinforce the efforts of one another are real. Without encouragement from home, children will not put into practice the environmental knowledge they have gained in school. Without an opportunity to see and contribute to constructive change in the community, students will soon become apathetic about their environment.

Community organizations, churches, governmental units, business, industry, labor and the family — all have responsibilities and all must be involved in community environmental education. The regional commissions will be in the best position to initiate this involvement and coordinate the efforts of the various segments of society.

Pre-K[1] Environmental Education

The environmental education process cannot wait for formal schooling to begin at the kindergarten level. Educational research has clearly shown that most basic concepts and attitudes are firmly established before a child enters kindergarten. Environmental education should begin during early childhood and hopefully it will, through the family structure.

The opportunity also exists to reach many preschoolers through the more than 500 public and private day care centers and nursery schools in Minnesota. This must be approached on a non-formal basis however, as there is no existing agency providing programs or policy to these institutions. The wide diversity in the kinds of schools and centers which exist — ranging from Montessori schools to private church-related schools to publicly-supported day care centers — makes it virtually impossible to utilize any one approach or formal mechanism to introduce environmental education at the Pre-K level.

Licensing of nursery schools and day care centers in Minnesota is handled by the Division of Social Services in the State Department of Public Welfare. It is this agency which could be the most helpful vehicle through which to encourage the inclusion of environmental programs in nursery schools and day care centers. Currently there are no groups or individuals responsible for writing curriculum materials for this age group.

The regional commissions could take a leadership role in this area. Suggested activities include:

1) the development of pilot curriculum materials to be tested in a sampling of pre-school centers located in various regions of the state.
2) Working through the national and state Association for the Education of Young Children to gain support for Pre-K environmental education. The group sponsors national and state annual conferences.
3) While there are no state qualification requirements for nursery school and day care center personnel (beyond requiring one certified teacher on staff), environmental edu-

[1] Those years of an individual's life prior to enrollment in kindergarten.

cation workshops could be planned to train these people on a non-formal, voluntary basis.

4) The Division of Social Services is receptive to program ideas to add to its resource file. Voluntary organizations should be encouraged to develop materials which would be appropriate for use in a pre-school program, and to make them available to Division of Social Services.

Voluntary Organizations

"My suggestion for implementation (of environmental education programs) is: Use representatives from all segments of the community . . . Don't forget volunteer organizations!"

—Member, Duluth Junior League
Northeast Regional Meeting, Dec. 4, 1971—

Volunteer organizations include environmental/conservation groups, civic, service and fraternal organizations, agriculture organizations, youth groups and churches. The regional commissions working with and through voluntary organizations, will be responsible for the following activities:

1) Developing and conducting seminars, workshops and short courses on environmental topics and issues for business-industry personnel, labor organizations, governmental employees and officials and the general public.
2) Identifying speakers and resource people with expertise on environmental matters to appear before voluntary organizations, business-industry groups, labor organizations, and school functions, as well as resource people to conduct programs at outdoor environmental learning areas.
3) Providing information on sound environmental practices to residents, for example — information about recycling, conservation of electricity and water and the use of non-polluting products.
4) Assisting teachers and students in developing and conducting environmental projects in the community.
5) Encouraging establishment of community-school programs by promoting cooperative agreements between the local school district, the municipal government and the State Department of Education, and providing resource people to conduct environmental education courses within that program.
6) Encouraging municipal governments to establish an environmental advisory commission and provide resource people to serve on and cooperate with the commission.
7) Encouraging the study of environmentally-related legislation enacted by or pending before local, state and federal governing bodies, and fostering communication between residents and elected officials about such legislation.
8) Encouraging and promoting environmental education training sessions for youth group leaders (i.e.: Camp Fire Girls, Boy and Girl Scouts, 4-H, Future Farmers of America.)
9) Designing and constructing displays on environmental topics and seeking locations for their use in public buildings, businesses, libraries and schools.
10) Identifying sources of environmental information, research materials, films, equipment and other resources and making this information readily available.

The Church

The church, as a voluntary organization within the community, has the opportunity to perform a unique and vital function in the on-going environmental education process. The Minnesota State Plan for Environmental Education recognizes the church, which through the years has been a strong molder of opinion in American society, as having powerful potential as an implementer of environmental education. Churches reach a large portion of the community's population on a regular basis in a "captive" audience situation. Churches reach all classes of people . . . all races . . . all ages.

Through religious education programs and through worship itself, the church can advocate a philosophy of stewardship for the environment; it can promote a new morality concerning the environment. In addition, there is room for involvement of other groups within the community structure to assist the church in performing this job by providing information regarding issues, promoting the establishment of environmental study groups and suggesting ways in which the church could more effectively exert its influence for change. Some specific suggestions include:

1) Regional commissions should develop environmental education seminars and workshops for clergymen and lay leaders to provide them with current, factual information regarding the environment in their own communities and suggestions of methods by which they can activate members of their congregations to protect and enhance that environment.

2) The regional commissions should encourage and assist theological schools and seminaries in developing environmental education programs and including a "theology of ecology" in the preparation of future clergymen.

3) Leaders of state and national church organizations (i.e. the National Council of Churches, the National Conference of Christians and Jews, and others) should be encouraged to use their influence to involve member churches in the environmental education effort.

Business — Industry and Labor Organizations

"Organized labor, business and industry can best demonstrate their citizenship by encouraging establishment of truly 'free' programs of environmental education. This can be demonstrated by legislative support and participation."

—A Duluth Businessman
Northeast Regional Meeting, Dec. 4, 1971—

The regional commissions will promote the involvement of the business-industry community and labor organizations in the community's environmental education efforts by assisting with the following activities to be implemented by the business-industry-labor community:

1) Providing scholarship funds to individuals interested in pursuing careers in the environmental sciences or to teachers for participation in environmental education workshops or courses.

2) Providing unconditional grants to colleges and universities to further research efforts in environmental areas.

3) Establishing and funding internship programs for teachers and other individuals seeking to gain a more balanced view of local environmental issues.

4) Providing objective information, research data and resource persons to local schools, libraries, organizations and churches.

5) Assisting teachers and students in developing and conducting environmental projects in the community.

6) Assisting schools, governmental units and voluntary organizations in acquiring and developing outdoor learning sites.

7) Cooperating in arranging environmentally-oriented tours of industrial facilities for schools, organizations and the general public.

8) Using a portion of advertising funds to promote environmental education efforts.

9) Providing encouragement and technical assistance to local groups and individuals seeking to develop and publish environmental education materials.

10) Encouraging the establishment of community-school programs by promoting cooperative agreements between the local school district, the municipal government and the State Department of Education, and providing resource people to conduct environmental education courses within that program.

11) Sponsoring projects to improve the community's environmental climate such as establishing and maintaining recycling centers, assisting clean-up campaigns and other activities designed to improve the community's aesthetics and heighten public awareness of the environment.

12) Creating environmental education displays to be circulated throughout the community.

13) Sponsoring in-service environmental workshops for representatives of the business, labor and industrial community.

14) Cooperating with union leadership in developing methods for reaching the total membership.

15) Providing informational programs for members of trade and professional organizations.

16) Providing meeting rooms for voluntary organization-sponsored events and adult evening classes.

17) Making information about corporate activities and results of research which are environmentally related available to the public.

Agriculture, Forestry, Tourism and Mining

While most of the above suggestions apply equally well to all business, industry and labor organizations, the State Plan recognizes that agri-

culture, forestry, mining and tourism are special cases requiring special recommendations.

Agriculture is Minnesota's largest industry; the state's farmers are in direct ownership or control of more productive acreage than any other segment of the population. The community is dependent upon the farmer for its most basic need — food. Agricultural lands also produce the food and natural habitat for much of our wildlife population.

Forestry and all other aspects of wood growth and use is ingrained in Minnesota's history. Forestry is right behind farming in the total number of acres used for specific kinds of crop production — in this case wood and fiber. Here, too, wildlife is dependent on good management practices.

The third category — tourism — can probably be said to owe most of its existence as a major Minnesota industry to another of our basic resources. Water is the big attraction.

Finally, mining of Minnesota metals and minerals has been and will continue to be one of the largest and most dramatic change-producing businesses in the state. Iron ore and taconite have been the core of the economy of much of the state. With the increased exploration for base metal deposits, including copper and nickel, and some positive finds, it would appear that, even though our basic iron ore deposits are almost gone, Minnesota will continue to be a major mining state.

These four industries are unique in that they make use of just about all the natural resources — both renewable and non-renewable — of the state. They also produce some unique environmental problems.

The regional commissions should provide education programs designed to examine these problems from all sides.

For example, what are the effects of feedlots, fertilizers, drainage and other farm practices? What is good forest management? What happens to surface uses when undeground deposits are to be mined? What are the long-term effects of heavy use of lakes, streams and rivers?

These are only a few of the very special environmental problems that must be included in any environmental education program in Minnesota. Such programs could best be developed by bringing together the efforts of existing special industry oriented organizations — such as farm organizations, forestry associations, resort associations and mining organizations.

Governmental Units

"Government should spearhead the environmental education efforts in an advisory and financial capacity . . ."

—A Rochester Soil Conservationist
Southeast Regional Meeting, Feb. 26, 1972—

The regional commissions should encourage governmental units on the local, state and federal levels to take a major role in environmental education. Their responsibilities should include the following activities:

1) Providing financial support to plan environmental education programs, develop materials and implement programs. This responsibility falls primarily to the federal and state governments, but local units should also provide matching funds towards the support of programs in their communities.
2) Developing training programs for governmental employees and elected officials to prepare them to effectively use the influence of their positions and offices to promote environmental education programs throughout the state and in their local communities.
3) Providing resource people and technical assistance to all other segments of the community.
4) Assisting with the acquisition and development of outdoor environmental learning sites.
5) Developing and implementing within governmental departments and agencies, sound environmental practices and resource management such as recycling, wise use of electricity and water, and use of non-polluting products and materials.
6) Making governmental information and the results of research and studies available to the public libraries and through the agency's own informational publications.
7) Establishing internship programs within environmentally-related departments and agencies for individuals pursuing careers in environmental sciences and for individuals whose employment is related to environmental affairs or education.
8) Assisting teachers and students in developing and conducting environmental projects within the local community.
9) Designing and constructing environmental education displays and providing space in public buildings for their use.

10) Providing meeting rooms and classroom space for environmental education activities.

In addition, municipal governments should:

1) Cooperate with the school district and the State Department of Education in establishing community-school programs, and provide resource people to help conduct environmental education courses in those programs.

2) Establish an environmental commission to advise the municipal governing body and staff on matters relating to the environment and to assist in the development and conduct of environmental education programs within the community.

3) Develop and implement procedures for assessing the environmental impact of all proposed action, especially those dealing with land use, zoning and open space and community aesthetics.

Communication

"Environmentally-interested people must generate a feeling of responsibility to be equally shared by all groups. An intensive public relations program needs to be implemented to 'sell' an environmental awareness."

—A Wildlife Refuge Manager
Northwest Regional Meeting, Feb. 12, 1972—

Effective communication holds the key to the success of both formal and non-formal environmental efforts. Unless the various segments of society are made aware of what other segments are doing, unless groups within individual segments communicate, unless environmentally-interested individuals "generate a feeling of responsibility" to other individuals, programs of even the highest calibre will fail. A major responsibility of both the local and national media should be reaching segments of the general public with environmental education programs. And it is essential that television, radio, films, newspapers, magazines and books contribute to informing the public about critical environmental problems and their possible solutions. However, the burden of proof is not upon the media alone. The responsibility also rests with groups and individuals to assist and encourage the media to do its job effectively. Furthermore, use of the media is only one means of communication; there are many others. All segments of formal and non-formal education efforts can employ individual techniques of communication.

Communication of Formal Education Programs

K-12 programs in public and private schools will only be successful if parents are made aware of the programs being offered their children in environmental education. And only if programs initiated by schools are reinforced at home can there be any hope of the acceptance and commitment necessary to assure that environmental education will be a continuing program. This awareness, and hopefully reinforcement, on the part of parents and other community residents, can be communicated in several ways through the regional commissions and local school districts:

1) Parent-Teacher organizations (e.g: P.T.A.) should be encouraged and assisted in promoting the school's environmental programs by devoting one or more monthly meetings to discussion and demonstrations regarding those programs.
2) Routine contact with local newspapers and the broadcast media should be established to keep it informed of worthwhile environmental activities taking place in or through the local schools. There is great human interest (and often excellent picture possibilities) in youngsters who are involved in community affairs — for example, doing a traffic study with the assistance of the police department.
3) K-12 school administrators should be encouraged to inform parents, through school newsletters and/or announcements, of environmental projects underway within the schools.
4) Education television stations should be made aware of environmental education activities which would be suitable for television programming and teachers and students should be given assistance and encouragement in preparing television material.
5) Students should be encouraged to write and produce their own spot environmental announcements for use on education television or as public service radio announcements.
6) With assistance from their regional commissions, local schools should develop informational materials which effectively communicate the importance of environmental education. Statements from key personnel within the school system and the regional commission should be widely disseminated through the media, organizational newsletter and other communicative devices.
7) Local schools and post-high school institutions can serve to spark non-formal education efforts in the community by cooperating in the sponsorship of seminars for businessmen and community leaders, public forums and exhibits, informational programs for the general public and assisting in development of clearinghouses of environmental information. These efforts will only be as effective as the communication devices which are utilized to advertise the events. Regional commissions should assist in publicizing such programs throughout the region.

Communication of Non-Formal Education Programs

It has already been established that an effective system of communication is essential to any environmental education program. Undoubtedly non-formal education efforts are most dependent upon that communication. Individuals, both young

and old, not involved in a formal educational institution need to be in touch with one another.

In the past voluntary organizations have adopted a crisis-oriented approach to using the mass media. When a speaker comes to town, or a marsh is drained, or a developer unfolds a plan to build high-rises, environmental activists often come forth.

This approach results in an uninformed or sporadically-informed public.

What is needed is a continuous stream of information to inform the public about environmental matters in general. Then when a crisis does arise, people will have a background of knowledge to use in dealing with it.

Suggestions for providing that stream of information include:

1) Regional commissions should assist local voluntary organizations in finding and training individuals to serve as media liaison persons within the eight regions. These people would be responsible for gathering information about environmental groups, and their schedules of events and speakers. This information would then be channeled to the local news media on a regular basis.

2) Regional commissions should provide the means for setting up a network of regular communications among voluntary organizations. Groups need to be made aware of projects underway or contemplated by other groups. Perhaps the exchange of newsletters published by the various organizations will accomplish this. Bulletin boards in schools, libraries, civic centers and regional commission headquarters would also be effective.

3) Regional commissions and voluntary organizations should generate news articles, feature stories and regular columns regarding current environmental topics and make the information available to newspapers, magazines, radio and television stations. Stories, based on fact, not opinion, are usually readily accepted by local newspapers, particularly weeklies, when they are presented in concise journalistic style which requires little or no re-writing. Photographs or art enhance stories and, illustrated articles get the best readership.

4) Labor unions can be reached most effectively through their own publications. Regional commissions should assist with development of factual information for use by unions in their publications. Short audio-visual presentations for use at union meetings could be developed, with the regional commissions providing guidance and assistance. Regional commissions should involve union leaders and members in planning and conducting programs.

5) Large businesses and industries often have their own internal employee publications. Regional commissions should encourage and assist contributors to those publications in covering environmental topics with particular emphasis on employee concerns.

6) The news media itself should be encouraged to recognize its own responsibilities to the environmental effort by regularly devoting staff time and news space to coverage of relevant activities.

State Level Administrative Recommendations

All of Minnesota's environmental problems affect, in some measure, all of Minnesota's citizens. While the development of specific educational programs designed to resolve those problems can best be accomplished on the local level, departments and agencies of the state and federal governments have a unique opportunity and responsibility to provide leadership to the comprehensive environmental education effort envisioned by this State Plan. Close cooperation and coordination is called for between the many diverse agencies and organizations which make up the educational, political, economic and social structure of the state. This cooperation and coordination will occur only if leaders of the various segments establish dialogue with each other to examine environmental issues and develop plans to cope with those issues. Leaders in the various state and federal departments and agencies should be the first to do this — their actions would provide an exemplary model for others to follow.

Among Federal agencies within Minnesota this has already been initiated by the Federal Executive Board's subcommittee on Natural Resources and the Environment. This group has included in its membership representatives of the Minnesota Environmental Education Council, Pollution Control Agency, State Planning Agency, Metropolitan Council, Department of Natural Resources and Department of Agriculture, in addition to representatives from each of the Federal agencies in the Minneapolis-St. Paul area. This procedure should be continued and possibly expanded.

In 1972 the Governor established the Environmental Quality Council, composed of the Commissioner of the Department of Natural Resources, Commissioner of the Department of Highways, Directors of the Minnesota Pollution Control Agency and State Planning Agency and the Governor. The Council is assisted by a 25-member citizens' advisory group. Communication between the Environmental Quality Council and the Environmental Education Council has been established through the exchange of minutes of meetings, personal contact between staff members and informational exchanges of appropriate materials.

Finally, because of the State Legislature's mandate to the Department of Education and Natural Resources regarding environmental education programs in the public schools and the necessity for coordinating those programs with educational efforts beyond K-12, the relationship between the two departments needs more detailed examination.

> *"The state department of education with the cooperation of the department of conservation (natural resources) shall prepare an inter-disciplinary program of instruction for elementary and secondary schools in the field of environmental conservation education. The program shall provide integrated approaches to environmental management consistent with socio-ecological principles, the production of appropriate curriculum materials and implementation in the public schools in the state."*
>
> —Minnesota Statutes, Chapter 126.111—

Compliance with this legislative mandate requires, at least, the following conditions:

1) Sufficient funds to develop the required materials and to provide for the training of teachers in their use;
2) A means of determining general content and format of materials which will be accepted by and meet the diverse needs of Minnesota's school districts and their local communities;
3) A means of evaluating materials and implementation procedures and of determining appropriate revisions to keep pace with changing needs of the school districts and their local communities;
4) A means of coordinating public school programs with those of other segments of the community;
5) A means for the two departments (Education and Natural Resources) to effectively receive information about local needs, to plan for meeting those needs, and to coordinate their activities, both within and between each department.

It is recognized that the two departments have worked cooperatively to meet those needs. Soon after enactment of chapter 126.111, the commissioners of the two departments established an inter-departmental environmental education steering committee composed of staff members from each department, and an advisory task force which included citizens who were not department employees. After about a year of operation, and concurrent with the appointment of an ad hoc planning committee, the task force was disbanded. The inter-departmental steering committee has been retained. The presently structured steering committee has not been as effective in meeting the needs described above as would be desirable, or as is possible. The less-than maximum effectiveness seems to stem from a number of factors including the following:

1) members of the steering committee (with the exception of the two environmental education consultants) have primary assignments which are not specifically directed toward environmental education. Those assignments necessarily take first priority, thereby diminishing as full participation on the steering committee as would be desirable;

2) the present structure does not allow for direct, formal input from and feedback to other segments of the society (other governmental agencies, voluntary organizations, business and labor) interested in environmental education, whose understanding and support of the departments programs is crucial to their acceptance and implementation within the local schools; and

3) the joint responsibilities assigned by the legislature are limited to K-12 programs. The two departments have differing roles and responsibilities in the areas outside K-12, and differing approaches to those responsibilities. Coordination and communication regarding those responsibilities probably falls beyond the scope of the steering committee.

In an effort to improve communication and coordination within and between the two departments on matters relating to environmental education, it is recommended that consideration be given to re-structuring the present environmental education steering committee as follows:

1) Establishment by each department commissioner, of an environmental education committee within each of the two departments. These committees would have, as part of their function, responsibilities for continued development and assessment of the department's environmental education plans and coordinating environmental education activities within each department's jurisdiction, communicating information about those activities to other members of the department, and seeking ways of implementing appropriate provisions of the State Plan for Environmental Education:

2) Establishment of an inter-departmental environmental education committee. This committee would consist of five staff members from each department, appointed by their respective department commissioners and five members of the Minnesota Environmental Education Council (who are not staff members of either department) to be selected by the Council. The size of this committee may be changed after one year of operation if the two departments and MEEC agree that a smaller or larger committee is needed to function effectively. As part of its function, this committee would be responsible for:

   a. coordinating plans of the two departments, resolving areas of difference, preparing recommendations on programs, budgets and other areas of mutual interest for submission to the two departmental committees, department commissioners and/or MEEC.

   b. developing and implementing means for reviewing and making recommendations on funding proposals submitted to the U.S. Office of Education under PL91-516 by schools or other organizations in the state, and developing priority lists for funding consistent with the State Plan and the departments' plans.

   c. developing recommendations on ways of effectively using the eight regional commissions to support and assist the two departments in implementing programs in the local schools.

   d. MEEC, through its eight regional commissions, would have responsibilities for (1) communicating information about department programs and plans back to local community organizations and encouraging and assisting those organizations in the development and implementation of non-formal programs which would reinforce and complement programs in the local schools; and (2) securing information about local efforts and needs for consideration by the inter-departmental committee.

Such an arrangement would allow for a smooth flow of information and recommendations both from and to the two departments and the local communities. This, in turn, would enhance MEEC's ability to serve as a spokesman and advocate for environmental education programs and proposals, both in governmental and private sectors; and it would also permit the Regional EE Commissions to work effectively with departmental personnel and implementation teams within the various regions of the state.

Concluding Comments . . .

The rationales and recommendations contained in *The Minnesota State Plan for Environmental Education* truly represent a massive educational effort, touching all major segments of Minnesota society. It is an effort that cannot be accomplished in a short period of time, but rather is viewed as an intensive one spanning at least two decades.

The Plan has its foundation at the local and regional level, recognizing the precious differences which exist throughout our state among both our human and other natural resources and calling on people at those levels to determine their own priorities and methods for implementing community-wide environmental education programs. The Plan also calls on our State Government — our Legislators, our Governor and our governmental employees — to establish by their example, the attitudinal climate and to provide the organizational and material resources which will allow meaningful environmental education programs to occur.

The necessity for all of us to become more environmentally conscious and to better prepare ourselves to make wise decisions on matters affecting our environment is well-established. This Plan describes ways in which this can happen. It will require a substantial investment of our energies and our financial resources, but the potential return makes it the most practical investment we can make to insure our future well-being.

Preliminary Annual Operating Budget

Minnesota Environmental Education Council

Staff—	
Professional	
Executive Secretary	$15,000
Program Assistant (½ time)	6,000
Clerical	
Secretary	6,000
Employee Benefits (10% gross salary)	2,700
Consultants Services	3,000
Travel and Per Diem (Staff and Council members)	7,000
Supplies and Materials	
Office supplies	1,000
Postage	1,500
Telephone	500
Printing and duplicating	2,500
Office equipment and furniture rental	1,500
Office space	1,500
TOTAL	$48,200

Preliminary Annual Operating Budget

Regional Environmental Education Committee

Staff—	
Professional	
Coordinator	$ 14,000
Clerical	
Secretary (½ time)	3,000
Benefits (10% gross salary)	1,700
Equipment (Rental)	
Desks, Chairs, File Cabinets, Typewriter, Mimeo Machine	1,000
Office Supplies	
Stationery and Miscellaneous Supplies	500
Postage	200
Printing and Duplicating	500
Telephone	300
Travel and Per Diem	
Staff and Council Members	3,500
Office Space Rental	
500/sq. ft. @ $6.00/sq. ft.	3,000
TOTAL	27,700
Grand Total for 8 Regional Commissions	$221,600

Minnesota State Plan for Environmental Education

Appendices

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1971-72 Membership Roster

Minnesota Environmental Education Council

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5400 Glenwood Avenue
Minneapolis, MN 55422

Vice-Chairman: DR. WILLIAM MILES
Extension Forester
University of Minnesota
St. Paul, MN 55101

Secretary: MS. MARY JACOBSEN
Past President, MN PTA
7515 Wentworth Ave. South
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Treasurer: MR. ROBERT LINDALL
Special Assistant to
Attorney General
MN Pollution Control Agency
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Past Chairman, City of Crystal
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MR. ROBERT KIMBALL, Executive Secretary
Minn. Environmental Education Council
Capitol Square Building
St. Paul, MN 55101

August 4, 1971

Executive Order No. 6

WHEREAS: A concern for the condition of the environment is being expressed with increasing frequency; diverse agencies and organizations are redefining their roles; schools are planning for reorganization in curriculum; citizen's groups are seeking ways of becoming usefully involved; and youth, as a potent but as yet latent force, is attempting to organize environmental action groups; and,

WHEREAS: These disparate groups, as well as individual citizens, are seeking coordination and assistance in the environmental area, especially in the development of a statewide program of environmental education; and,.

WHEREAS: Under the provisions of Public Law 91-516, the Environmental Education Act of 1970, the U.S. Department of Health, Education and Welfare, Office of Education, funds are available to state planning groups for special evaluation and dissemination grants; and,

WHEREAS: The Environmental Education Planning Committee, convened by the Governor in May, 1971, has received a grant under said provisions of the Environmental Education Act of 1970; and,

WHEREAS: It would be beneficial to the State of Minnesota to organize an Environmental Education Council to continue the development of a comprehensive plan for the environmental education of all the citizens of Minnesota,

Now, therefore, by virtue of the authority vested in me as Governor of the State of Minnesota, it is hereby

ORDERED: That the "Minnesota Environmental Education Council" be established. That it be composed of no more than thirty persons, who shall by virtue of their training or experience or interest be knowledgeable in the area of environment. That ex-officio members be named to the Council by the Governor as is deemed appropriate.

It is further

ORDERED: That a Chairman, Vice-Chairman, Secretary and Treasurer of the Minnesota Education Council created by this Executive Order shall be elected by majority vote of the Council for a term of one year.

It is further

ORDERED: That the aforementioned grant from the U.S. Department of Health, Education and Welfare, Office of Education, to the State of Minnesota, Department of Education, will furnish the staff assistance necessary to carry out the responsibilities imposed by this Executive Order, and that the persons duly appointed as members of the Minnesota Environmental Education Council are to serve for terms beginning this date and serving at the pleasure of the Governor.

The Minnesota Environmental Education Council is formed for the purposes of:

representing the views and acting as liaison among the citizens of the state including citizen's groups, business and industry, higher, secondary and elementary education, federal and state agencies, youth organizations and others;

advising and making recommendations on matters of environmental education to the Governor, Commissioner of the State Departments of Education and Natural Resources, U.S. Office of Education and appropriate state and federal legislative committees;

preparing a comprehensive Master Plan for Environmental Education for all citizens of Minnesota in conjunction with joint efforts in environmental education by the Departments of Education and Natural Resources pursuant to direction of the Minnesota Legislature;

implementing such plans as is necessary and deemed appropriate by the Council and the Governor.

/s/ WENDELL R. ANDERSON
WENDELL R. ANDERSON
GOVERNOR

Attest:
Arlen I. Erdahl
Secretary of State

1969 Enabling Legislation

A bill for an act

relating to education establishing a program of instruction in environmental conservation education in the public schools; appropriating money; amending Minnesota Statutes 1967, Chapter 126, by adding a section.

Be it enacted by the legislature of the state of Minnesota.

Section 1. Minnesota Statutes 1967 Chapter 126, is amended by adding a section to read:

(126.111) (ENVIRONMENTAL CONSERVATION EDUCATION) The state department of education with the cooperation of the department of conservation shall prepare an interdisciplinary program of instruction for elementary and secondary schools in the field of environmental conservation education. The program shall provide integrated approaches to environmental management consistent with socio-ecological principles, the production of appropriate curriculum materials and implementation in the public schools in the state.

Project Summary

A Proposal for an Evaluation and Dissemination Grant for State Planning Groups

Submitted to the U.S. Commissioner of Education under the provisions of PL 91-516, Environmental Education Act of 1970.

The state planning group proposes to:

1) Prepare a master plan for environmental education for all the citizens of Minnesota.
2) Provide advice and submit recommendations to the Governor's office and the State Legislature on matters pertaining to environmental education.
3) Represent the State of Minnesota on long-range Federal funding matters.
4) Provide liaison among all agencies and organizations involved in environmental education.

These goals will be accomplished by the following techniques and activities:

1) Conducting a survey of the entire State for the purpose of identifying and determining the status of existing Environmental Educationally-oriented groups. The survey will include evaluation and recommendations pertaining to input that these groups can contribute to Environmental Education for the State of Minnesota.
2) Establishing a communications network between and among the Environmental Education groups of the State.
3) Identifying and evaluating existing environmental education materials in terms of their relationship to the State Plan.
4) Developing a provision within the State Plan for promoting and accomplishing community involvement in the environmental education program of their state and local government.
5) Studying the concept of, including location and need for, Regional Environmental Education Centers and determining the advisability and feasibility of promoting their development in Minnesota.
6) Developing an evaluation plan and procedure which includes a statement of baseline information pertaining to the current status of the environment, attitudes, and practices of people toward their environment, and existing law and policy relative to the welfare of the environment. This baseline information will become the control for the future evaluation of the State Plan's objectives.
7) Establishing a timetable for the Master Plan's attainment of its objectives.
8) Conducting a cost analysis of the Master Plan's program and developing a budget for its implementation and operation.

Duration of Grant: One year, July 1, 1971 to June 30, 1972.

Project Summary

A Proposal for an Evaluation and Dissemination Grant for State Planning Groups

Submitted to the U.S. Commissioner of Education under the provisions of PL 91-516, Environmental Education Act of 1970.

The Minnesota Environmental Education Council (the state planning group) is presently conducting activities under the terms of an Evaluation and Dissemination grant awarded by the U.S. Office of Education under PL 91-516. This proposal seeks continued funding under PL 91-516 for a second-year effort. The proposal is submitted under the terms of Type B, Statewide Evaluation and Dissemination Grants.

Under the present grant program, the planning group is developing baseline data on the present status and needs of environmental education in the state, and on the basis of these findings will complete a comprehensive state plan for environmental education in Minnesota.

The proposed continuation would permit the state planning group to effectively disseminate the state plan and to seek necessary financial and moral commitments to its implementation. The planning group proposes to secure these commitments by:

1) Dissemination and interpretation of the state plan to various target groups representing the many diverse elements of the state;
2) Working with appropriate interim committees of the state legislature;
3) Developing and seeking passage of appropriate legislation during the next session of the legislature beginning in January 1973;
4) Coordinating and assisting the efforts of other interested agencies and organizations in achieving full implementation of the state plan; and
5) Maintaining liaison and communication with appropriate components of the target groups.

Duration of Grant: One (1) Year, July 1, 1972 to June 30, 1973

Sources of Background Information

Recommendations included in the Minnesota State Plan for Environmental Education are based on analysis of information gathered from several different sources over a period of almost a year. These sources include:

1) The background and experience of the 30 members and six ex-officio members of the Minnesota Environmental Education Council,
2) Status and Needs surveys of:
   a. *Public school districts throughout Minnesota,*
   b. *Voluntary organizations concerned with the environment and/or education,*
   c. *Municipal government units in communities of more than 2500 population,*
   d. *Major businesses and industries in Minnesota,*
3) Six fact-finding meetings held in key regions throughout the state to determine the existing programs and needs from persons representing schools, businesses and organizations in those areas,
4) A symposium for representatives of post-high school institutions in the state, and
5) Thirty-five grant proposals submitted in 1972 to the United States Office of Education under PL91-516 from schools, communities and organizations throughout Minnesota.

The information gathered from the sources noted in 2 through 5 above has been compiled and summarized and is available at the following locations:

1) The Legislative Reference Library, State Capitol, St. Paul, 55101;
2) The Environmental Conservation Library of Minnesota, Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, 55401;
3) The MEEC Office, 647 Capitol Square Building, St. Paul, 55101.